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(FILE 'HOME' ENTERED AT 20:38:07 ON 07 FEB 2008)

FILE 'CA' ENTERED AT 20:38:19 ON 07 FEB 2008

L1 22242 S COAL TAR  
L2 38459 S SOIL(6A) (EXTRACT? OR LEACH? OR DISPLAC?)  
L3 59 S L1 AND L2  
L4 42 S TAR(7A)L2  
L5 247 S L1-2 AND DEPTH(4A) (LOG? OR PROFIL?)  
L6 124 S L5 AND(WATER OR H2O OR AQUEOUS)  
L7 198 S L3-4,L6  
L8 165 S L7 AND PY<2004  
L9 4 S L7 NOT L8 AND PATENT/DT  
FILE 'ENCOMPLIT' ENTERED AT 20:46:07 ON 07 FEB 2008  
L10 19 S L8  
FILE 'CA, ENCOMPLIT' ENTERED AT 20:54:25 ON 07 FEB 2008  
L11 184 DUP REM L8 L9 L10 (4 DUPLICATES REMOVED)

=> d bib,ab 111 1-184

L11 ANSWER 2 OF 184 CA COPYRIGHT 2008 ACS on STN  
AN 143:178703 CA  
TI Method and apparatus for characterizing coal tar in soil  
IN Moo-Young, Horace Keith; Brown, Derick Gerdts; Coleman, Andrew J.  
PA USA  
SO U.S. Pat. Appl. Publ., 15 pp.  
PI US 2005164396 A1 20050728 US 2004-766497 20040127  
PRAI US 2004-766497 20040127  
AB The present invention provides a method and app. or system for detg. an amt. of coal tar that can enter, and subsequently be displaced from, a given type of soil for a range of depths of the soil. The method and app. also provide verification of the pressure at which coal tar can be displaced from a given type of soil. In particular, the method and app. simulate the hydrostatic pressure that a soil sample encounters in the subsurface of the ground. Accordingly, the method and app. provide a relationship between the concn. of coal tar in the soil and the pressure required to displace the coal tar from the soil, which allows for an estn. of the amt. of coal tar that may be displaced at a particular location or site. Further, the method and app. are adaptable for use in the lab. or the field.

L11 ANSWER 4 OF 184 CA COPYRIGHT 2008 ACS on STN  
AN 140:81534 CA  
TI Organic contaminant soil extraction system  
IN Schabron, John F.; Sorini-Wong, Susan S.  
PA The University of Wyoming Research Corporation, USA  
SO U.S. Pat. Appl. Publ., 14 pp., Cont.-in-part of U.S. Ser. No. 558,979.  
PI US 2004009610 A1 20040115 US 2003-617247 20030709  
PRAI US 1999-131648P P 19990429  
AB A device and method for testing a soil sample for org. contaminants, including stirring soil samples and solvent for subsequent testing of an extd. phase with a plurality of interchangeable rotationally configured stir implements for testing of a variety of soils. Generally, this

invention relates to a soil testing device and screening techniques which may be utilized for detg. various contaminants in soil. Specifically, the invention focuses upon the devices and methods that may be used to provide an improved technique for efficiently stirring soil and extn. solvent for consistent extn. and the anal. of org. contaminants in soil. The device may be used either in the lab. or as a field-portable unit.

L11 ANSWER 18 OF 184 CA COPYRIGHT 2008 ACS on STN

AN 139:260584 CA

TI NSO-heterocyclic compounds at MGP sites: characterization and potential for bioremediation

AU Gemoets, Johan; Vanermen, Guido; De Vries, Peter; Van de Sterren, Gerben; Weyting, Koen

CS Vito, Mol, Belg.

SO Remediation of Chlorinated and Recalcitrant Compounds--2002, Proceedings of the International Conference on Remediation of Chlorinated and Recalcitrant Compounds, 3rd, Monterey, CA, United States, May 20-23, 2002 (2002), 324-330. Editor(s): Gavaskar, Arun R.; Chen, Abraham S. C. Publisher: Battelle Press, Columbus, Ohio.

AB Samples of tar-contaminated soil and polluted groundwater were collected at 11 manufd. gas plant (MGP) sites in the Netherlands and in Belgium and were characterized for tar components. With samples from four sites, lab.-scale tests are being performed to characterize the mobility of tar components and to study their potential for bioremediation. Pollutant mobility in the environment was evaluated by performing a column leaching test, whereby the aq. leachate is analyzed by GC-FID in conjunction with a GC-FID anal. of a solvent ext. of the same soil sample. Product peaks from both chromatograms are used to plot b.ps. of compds. vs. aq. solubilities, resulting in a diagram from which the potential for volatilization and groundwater contamination caused by tar contamination can be deduced. Heterocyclic hydrocarbons proved to make up a significant fraction of coal tars, esp. in tars of low to medium viscosity. They contributed to the majority of aq. emissions from coal tar. They were identified in groundwater samples near NAPL sources in similar concns. as arom. hydrocarbons (BTEX) and naphthalenes. Bioremediation tests indicated that the majority of NSO compds. were subject to relatively rapid biodegrdn. in soil under aerobic conditions. In-situ groundwater cleanup by aerobic bioremediation may be a viable technol. for most NSO compds. However, thiophene appears to be more resistant to biodegrdn., and it was the most persistent NSO compd. in groundwater samples.

L11 ANSWER 62 OF 184 CA COPYRIGHT 2008 ACS on STN

AN 129:306021 CA

TI Creosote and coal-tar DNAPL characterization in Fraser River sands

AU Patrick, Guy C.; Anthony, Thomas

CS Golder Associates Ltd., Burnaby, BC, Can.

SO Nonaqueous-Phase Liquids: Remediation of Chlorinated and Recalcitrant Compounds, International Conference on Remediation of Chlorinated and Recalcitrant Compounds, 1st, Monterey, Calif., May 18-21, 1998 (1998), 149-154. Editor(s): Wickramanayake, Godage B.; Hinchee, Robert E. Publisher: Battelle Press, Columbus, Ohio.

AB The extent and character of dense, nonaq. phase liq. (DNAPL) source zones assocd. with 3 creosote and coal tar sites along the north shore of the Fraser River in Vancouver, British Columbia, were examd. and compared. At each site, source zones were characterized using continuous-core sampling techniques, while assocd. plumes of dissolved chems. were characterized by vertically profiling the aquifer at multiple depths using novel profiling technol. Results of sampling showed the non-uniform extent and heterogeneous distribution of DNAPL, which appears to be a consequence of lateral migration along capillary barrier surfaces. Natural attenuation of the assocd. dissolved plumes was demonstrated, and may provide an effective risk management tool; however, the source zones beneath the river present tech. challenges for remediation, which has focussed on defining risk-based solns. to manage the DNAPL in place.

L11 ANSWER 92 OF 184 CA COPYRIGHT 2008 ACS on STN

AN 122:221903 CA

TI Assessment of in situ solvent extraction for remediation of coal tar sites: column studies

AU Roy, Sujoy B.; Dzombak, David A.; Ali, M. Ashraf

CS Department of Civil Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA, 15213, USA

SO Water Environment Research (1995), 67(1), 4-15

AB The feasibility of coal tar site remediation by the injection and recovery of water-miscible, biodegradable solvents is described. The overall objective of the study was to est. the cleanup time and solvent vol. required for remediation. We describe the results of column expts., performed by passing solvent-water solns. through glass bead-packed columns contaminated with coal tar blobs at low volumetric satn. This expt. design allowed the investigation of dissoln. rate limitations at residual saturations similar to those obsd. in the field, albeit under more homogeneous conditions. The column effluent data were modeled with a modified advection-dispersion equation that includes a mass-transfer source term for coal tar dissoln. This source term empirically relates mass transfer to exptl. variables as coal tar satn. and solvent flow velocity using fitting parameters. The values of parameters in the mass-transfer source term were estd. from exptl. data. The modeling approach and the parameter values developed in this study have been used in simulations of the in situ solvent extn. process.

L11 ANSWER 101 OF 184 ENCOMPLIT COPYRIGHT 2008 ELSEVIER INC. on STN

AN 94:9183 ENCOMPLIT;ENCOMPLIT2

TI Supercritical water extraction of town gas soils

AU Kocher B S; Cutright T J; Vamosi J E; Lee S

CS University of Akron

SO AIChE 1994 Spring National Meeting (Atlanta 4/17-21/94) Preprint N.74b 8P.

AB Supercritical water extraction of town gas soils. Supercritical water extraction was studied for the remediation of town gas soil, such as in some 2000-3000 abandoned town gas sites across the USA. The soil is contaminated with coal tar, a by-product of steam reforming of coal used to produce a low-Btu gas for lighting and heating. The coal tar contains large fractions of PAH which have penetrated deeply into the

soil. The unique properties of supercritical water allowed easy penetration into the micropore structure of the soil and solubilization of the contaminants. Supercritical fluids greatly decreased mass transfer resistances giving them the ability to quickly remove the contaminants from the soil. Town gas soils ranging from 3-20 wt % contamination level were studied and ultra-cleaned to levels of > 99%. The extraction process was able to remediate the town gas soil of 7.40 wt % contamination to a level of 0.58 wt % which is a 99.0% decontamination level at 672 K, 24.82 MPa, and a water solvent/soil weight ratio of 1.5:1. Flow diagram, tables, graphs, and 12 references.

- L11 ANSWER 130 OF 184 ENCOMPLIT COPYRIGHT 2008 ELSEVIER INC. on STN  
AN 91:3967 ENCOMPLIT;ENCOMPLIT2  
TI Determination of soil-water partition coefficients for polynuclear aromatic hydrocarbons and volatile aromatics associated with contaminated soils  
AU Cushey M A; Cole A L; Morgan D J  
CS Remediation Technologies Inc  
SO AIChE 1990 Summer National Meeting (San Diego 8/19-22/90) Preprint N.56e 26P.
- AB Determination of soil-water partition coefficients for polynuclear aromatic hydrocarbons and volatile aromatics associated with contaminated soils. The extent to which organic compounds at a hazardous waste site partition between the soil and groundwater can markedly affect evaluations of risk and development of remediation strategies. To date, partition coefficients ( $K_{sub}p$ ) (ratios of the equilibrium soil to water concentrations) have been typically calculated based on published chemical-specific partition coefficients ( $K_{sub}o$ ) ( $sub$ )c) and the measured fraction of organic carbon in the soil ( $f_{sub}o$ ) ( $sub$ )c), and have usually been developed by spiking uncontaminated soils with pure organic compounds. An alternative to this approach was developed using soils from a town gas plant site, which were contaminated with coal tar residuals (including BTX, ethylbenzene, and two-to-four-ring PAH). Procedures for calculating  $K_{sub}p$  by long-term, equilibrium, extraction of the contaminated soil with water were developed.  $K_{sub}p$  for six site soils were determined, and were compared with  $K_{sub}p$  calculated as the product of  $f_{sub}o$  ( $sub$ )c and  $K_{sub}o$  ( $sub$ )c. The experimental  $K_{sub}p$  values were generally lower. Diagram, flow diagram, graphs, and tables.
- L11 ANSWER 133 OF 184 CA COPYRIGHT 2008 ACS on STN  
AN 111:49656 CA  
TI Supercritical fluid extraction of coal tar-contaminated soil samples  
AU Wright, Bob W.; Wright, Cheryln W.; Fruchter, Jonathan S.  
CS Chem. Environ. Sci. Dep., Battelle Northwest Lab., Richland, WA, 99352, USA  
SO Energy & Fuels (1989), 3(4), 474-80  
AB Soil samples contg. coal tar residues from manufd. gas (town gas) plants were extd. by carbon dioxide supercrit. fluid extn. (SFE) and Soxhlet extn. techniques. The detection limits and the reproducibility of the SFE method were evaluated, and the comparability of measured concns. of polycyclic arom. hydrocarbons (PAH) by the two extn. methods was detd. Lab. exts. were analyzed by high-resoln. gas chromatog. to quantify

selected PAH. SFE recoveries of soil-spiked PAH compds. were quant. within exptl. error. The detection limits of the method were in the 50-100 ppb range. The reproducibility in PAH concns. detd. for three early SFE replicate exts. averaged  $\pm 25\%$  std. deviation of the mean. A later reproducibility study for 10 replicate SFE exts. of a different sample averaged  $\pm 16\%$  std. deviation of the mean (12% due to anal.; 4% due to SFE replication). Five Soxhlet exts. averaged  $\pm 11\%$  std. deviation from the mean reproducibility (10% due to anal.; 1% due to replication). SFE ext. PAH concns. varied from Soxhlet ext. PAH concns. by an av.  $\pm 20\%$ ,  $\pm 12\%$ , and  $\pm 10\%$  for three samples. Greater than 80% and 100% extn. efficiencies were achieved in the first 30 min of SFE when three successive extns. were performed on two samples, resp. SFE tended to discriminate against high mol. wt. PAH due to their lower solubilities in supercrit. carbon dioxide. Overall, the SFE method provided rapid (30-min) extn. that may prove to be useful for in-the-field detns. of org. compds. in soils. The SFE method shows promise as an alternative to, or an addn. to, traditional Soxhlet extn.

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STN INTERNATIONAL LOGOFF AT 20:55:36 ON 07 FEB 2008